

The Investor's Dilemma

Carlos Morales, a home-style inventor, has a great idea for a new product, but faces both technical and market uncertainties. Due to some technical problems he has encountered with early prototypes, he estimates that there is a 50% chance that the product is technically feasible. He is more optimistic on the market side, where he estimates the probability that the market receives the product favorably is 80%.

If he proceeds with his idea, then he will have to start with serious development efforts. €50,000 would be required in a first stage where Carlos would determine beyond any doubt whether or not the project is indeed feasible. After that, Carlos would have to spend an additional €500,000 to complete all R&D.

If the product would eventually be successful in the market, Carlos would earn €1,500,000 to cover the initial expenses and retain the remainder as profit. In contrast, an unsuccessful product would add another €300,000 to his losses. To help him assess the product performance in the market, a marketing research company offers to conduct a market analysis for €10,000. The company claims that it correctly identifies successful products with an 80% probability and market failures with a 90% probability.

Carlos wonders how to proceed. Should he conduct the market analysis at all? If so, should he do so *before, during, or after* product development? Carlos is also worried about large financial losses and does only want to expose himself if the odds are hugely in his favor. He even had approached an angel investor as a potential partner. The angel had shown considerable interest in his idea, but only committed to a risk mediating loan up to €50,000: If Carlos's product would ultimately be successful in the market, then she would be repaid the loan plus 400% interest; otherwise Carlos would be under no obligations to repay the loan to the extent that it was used for legitimate business expenses.

You are working for a non-profit organization that provides free advice to budding entrepreneurs. Prepare a report to advise Carlos on how to think about his prospects.